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ABSTRACT

With the advent of the British National Curriculum, computer-based modeling has become an integral part of the school curriculum. This book is about modeling in education and providing children with computer tools to create and explore representations of the world. Members of the London Mental Models Group contributed their research: (1) "Introduction: Modelling and Education" (Harvey Mellar and Joan Bliss); (2) "Overview: The Nature of Modelling" (Jon Ogborn); (3) "Models: Their Makers, Uses and Problems" (Jon Ogborn and Harvey Mellar); (4) "From Mental Models to Modelling" (Joan Bliss); (5) "Computational Issues in Modelling" (Jon Ogborn and Rob Miller); (6) "Representations and Representation Systems" (Haralambos Sakonidis); (7) "Interpreting the World with Numbers: An Introduction to Quantitative Modelling" (Richard Boohan); (8) "Reasoning with a Quantitative Modelling Tool" (Richard Boohan and Tim Brosnan); (9) "Integrating Situation-Based and Algebraic Approaches: The Role of Spreadsheets" (Rosamund Sutherland); (10) "Using Spreadsheets To Develop Understanding in Science" (Tim Brosnan); (11) "Models and Metaphors in Reasoning about Probability" (Peter Wilder); (12) "Learning about Mathematical Modelling: A Case Study Using 'Model Builder'" (Peter Winbourne); (13) "Starting from Data: A Different Approach To Making Models" (Richard Boohan); (14) "Causality and Common Sense Reasoning" (Joan Bliss); (15) "Reasoning with a Semi-Quantitative Tool" (Joan Bliss); (16) "An Introduction to Qualitative Modelling" (Chris Tompsett); (17) "Reasoning with a Qualitative Modelling Tool" (Joan Bliss and Haralambos Sakonidis); (18) "Learning by Building Expert System Models" (Mary Webb); (19) "Creating Worlds from Objects and Events" (Richard Boohan); (20) "Towards a Modelling Curriculum" (Harvey Mellar); (21) "Developing Software and Curriculum Materials: The Modus Project" (Margaret Cox and Mary Webb); (22) "Incorporating Modelling into a Mathematics Curriculum" (Sue Burns); and (23) "Modelling and Teacher Change" (Ian Stevenson and David Hassell). Two tables and 65 figures illustrate

these discussions. (Contains 73 references.) (SLD)

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